



Patent

Docket No.: HM-638

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Gerhard Heitze, et al
Serial No: 10/538,971
Filed: June 14, 2005
For: COILER DEVICE FOR ROLLED STRIP
Examiner: William E. Dondero
Art Unit: 3654

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

CORRECTED BRIEF ON APPEAL

S I R:

This appeal is taken from the Final Action mailed
November 16, 2007.

Real Party in Interest

The real party in interest in the above-identified application is SMS Demag AG, Eduard-Schloemann-Strasse 4, 40237 Düsseldorf, Germany, pursuant to an assignment recorded January 12, 2007, under Reel/Frame 018924/0443.

Related Appeals and Interferences

There are no related appeals or interferences of which Applicant is aware regarding the above-identified application.

Status of Claims

Claims 1 to 12 are in the application and are the claims on appeal.

Claims 1 to 6 and 11 to 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rockstrom et al. (US Patent 2,985,398) in view of Cohn (US Patent 2,928,621) and claims 7-10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rockstrom et al. in view of Cohn and further in view of Frye et al. (US Patent 4,541,585).

Status of Amendments After Final Rejection

A response after final rejection was filed, however, the Examiner advised in the Advisory Action dated April 4, 2008, that the response does not place the application in condition for allowance.

Summary of the Claimed Subject Matter

The claimed invention will now be summarized with reference to the drawings being made by way of reference numerals.

The claimed invention is directed to a coiler for rolled strip.

As illustrated in Fig. 1 and as discussed in the paragraph bridging pages 7 and 8 of the specification, the coiler comprises at least one driven troughed roller 1 for turning a coil 2, illustrated in Fig. 2, during coiling or uncoiling of the rolled strip. As mentioned in the first paragraph on page 1 of the specification, a roller table is provided upstream or downstream from the coiler. The troughed roller 1 comprises an elastically deformable outer collar 4, illustrated in Fig. 2 and mentioned in

the paragraph bridging pages 7 and 8 of the specification.

The outer collar 4 is uniformly supported by support members 6 that are spring-tensioned from the inside by disk springs 8 against the outer collar 4, as illustrated in Fig. 1 and discussed in the paragraph bridging pages 7 and 8 of the specification, and at lines 9-11 of page 8.

Grounds of Rejection to be Reviewed on Appeal

The following grounds are presented for review:

Whether claims 1 to 6 and 11 to 12 are unpatentable under 35 U.S.C. 103(a) over Rockstrom et al. in view of Cohn and whether claims 7 to 10 are unpatentable under 35 U.S.C. 103(a) over Rockstrom et al. in view of Cohn and further in view of Frye et al.

Argument

The rejection of claims 1-6 and 11-12 under 35 U.S.C. 103(a):

With respect to the rejection of claims 1 to 6 and 11 to 12, applicants respectfully point out that the reference to Rockstrom et al. discloses a device for slitting and rewinding strips.

In accordance with the reference to Rockstrom et al., the exiting web 30 is rolled off a single roll 31 that supports the entire width of the web 30, and is wound onto a further roll 32, and in the region of a cutting roll 33 is cut into small subwebs 30a by slitter wheels 34. Alternate ones of the subwebs 30a are wound on rewind shaft 21 and others on rewind shaft 22. For tensioning the subwebs 30a they pass partially around a contact drum 29. In this way the individual subwebs are tensioned and can be wound under tension. Due to this arrangement, a tension-free movement of the subwebs is prevented. The elastic drum 29 is fixed in position and the rewind shafts 21, 22 are at a distance from the drum 29 which distance increases as the diameter of the rewind shafts increases.

In contrast, in the presently claimed invention, a coil of rolled strip is wound and unwound. The coil is supported by its own weight on two spaced troughed rollers. As shown in Fig. 1a, the coil lies on each trough roller with a linear pressure. A marking of the strip results from the weight of the coil being supported along two lines. The object of the present invention is to prevent this marking. For rolling or unrolling, one of the two troughed rollers is driven. Contrary to Rockstrom et al., in the present invention the coil lies across its entire width only on the two lines in contact with the troughed rollers. Furthermore, while Rockstrom et al. use a uniform tension force in the individual subwebs 30a to pull them through the elastic roll, in the present invention the outer surface of the troughed rollers can deform along the load line when uneven loading is present, so that the surface of the strip is not damaged.

Thus, Rockstrom et al. has a different construction and operation from the present invention. In Rockstrom et al. the outer surfaces 70 of the annular resilient elements 55 are pressed outwardly when the pulling force of the subwebs 30a reduces, while in the present invention the outer surface of the troughed roller is pushed toward the axis of the roller. In the present invention, the pressing or resting force on the coil is reduced and equalized

over the entire width of the coil. The coil rests elastically on the line of the troughed rollers and marking, as is possible with rigid troughed rollers, is prevented. This is not taught by Rockstrom et al.

The patent to Cohn discloses a mandrel and actuator. The Examiner combined Cohn with Rockstrom et al. in determining that claims 1-6, 11 and 12 would be unpatentable over such a combination. Applicant submits that Cohn is not relevant prior art. The coiler of the present invention has troughed rollers that support the outer diameter/surface of the coil. Cohn, on the other hand teaches a mandrel that supports the inner diameter of the coil. This is a completely different principal than the present invention. Furthermore, Cohn does not even teach a troughed roller, but instead, as mentioned previously, a mandrel around which a coil can be wound. The mandrel of Cohn can be expanded outwardly in that it has segments that can be moved radially outward by inner bars. Such mandrels are used for expanding the inner diameter of the wound coil to permit removal of the mandrel from the coil. Without such an expansion capability, removal of the mandrel would damage the surface of the rolled metal and/or pull the innermost coils out of the overall coil.

Applicants respectfully submit that neither of these references, nor their combination, teach a coiler device having an outer collar uniformly supported by support members that are spring-tensioned from the inside by disk springs against the outer collar, as in the presently claimed invention.

The rejection of claims 7-10 under 35 U.S.C. 103(a):

With respect to the rejection of claims 7 to 10, the patent to Frye et al. discloses a compliant drum and rider roll.

The Examiner combined Frye et al. with Rockstrom et al. and Cohn in determining that claims 7 to 10 would be unpatentable over such a combination. Applicants respectfully submit that none of these references, nor their combination, teach a coiler device having an outer collar uniformly supported by support members that are spring-tensioned from the inside by disk springs against the outer collar, as in the presently claimed invention.


Conclusion

Accordingly, in view of the above considerations, it is respectfully submitted that the Examiner's rejection of the claims are in error and should be reversed.

The amount of \$510.00 to cover the fee for filing an appeal brief has previously been submitted. Any additional fees or charges required at this time in connection with this application should be charged to Patent and Trademark Office Deposit Account No. 11-1835.

Respectfully submitted,

Dated: November 4, 2008 By


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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on November 4, 2008

By:


Klaus P. Stoffel

Date: November 4, 2008

Claims Appendix

1. Coiler for rolled strip, which comprises at least one driven troughed roller (1) for turning a coil (2) during coiling or uncoiling of a rolled strip and a roller table upstream or downstream from the coiler, wherein the troughed roller (1) is designed with an elastically deformable outer collar (4), wherein the outer collar is uniformly supported by support members that are spring-tensioned from the inside by disk springs against the outer collar.

2. Coiler in accordance with Claim 1, wherein the troughed roller (1) has a bearing surface (3) formed by a series of adjoining outer collars (4) of different diameters, which surround a core (5) of the troughed roller (1) so that they act on a contact surface (7) of the troughed roller (1) with the coil (2) over its entire longitudinal extent with uniform contact pressure.

3. Coiler in accordance with Claim 2 [[1]], wherein the support members (6) are designed with curved contact surfaces to adapt them to the inner circumference of the outer collars (4).

4. Coiler in accordance with Claim 2, wherein the back of each support member (6) is lined with a set of disk springs (8) with predeterminable pretensioning.

5. Coiler in accordance with Claim 2, wherein the support members (6) are mounted in the outer collars (4) with pretensionable spring force.

6. Coiler in accordance with Claim 1, wherein to compensate a load-related flexure of the troughed roller (1), which can be calculated or empirically determined, the outside diameters of the outer collars (4) increase towards the middle of the troughed roller (1).

7. Coiler in accordance with Claim 1, wherein adjoining outer collars (4) are provided with an oblique transition to the adjacent outer collars (4).

8. Coiler in accordance with Claim 1, wherein the bearing surfaces of the outer collars (4) are designed with a slight camber (9), which, however, does not exceed the magnitude of the difference in diameters.

9. Coiler in accordance with Claim 1, wherein two troughed rollers (1, 1') that can be arranged with a predeterminable axially parallel separation act together to support the load of the coil (2).

10. Coiler in accordance with Claim 9, wherein at least one of these troughed rollers (1) has a rotational drive.

11. Coiler in accordance with Claim 1, wherein the troughed roller (1) comprises

- a solid central shaft (5),
- a middle collar (11) on the shaft (5) for holding support members (6) that can be spring-tensioned, and
- an outer collar (4) with an outer support collar (12) for supporting the load.

12. Coiler in accordance with Claim 1, wherein a contact surface (7), especially concave contact surface (7), that forms on a coil during the uncoiling can be automatically adapted to the usually cambered circumference of the coil (2) by means of the elastically yielding outer collars (4).

Evidence Appendix

N.A.

Related Proceedings Appendix

There are no related proceedings.